



NAVAL OCEANOGRAPHIC OFFICE

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Challenging and Exciting Careers at the Naval Oceanographic Office

Physical Scientist—Physical scientists are often responsible for equipment calibration and preparation, measurements and sampling at sea, instrument maintenance and repair and data processing. A bachelor's degree is required in physical science, engineering or mathematics that includes 24 semester hours in physical science and/or related engineering science such as mechanics, dynamics, properties of materials and electronics.

Geophysicist/Acoustician—These scientists collect, process and validate subbottom, seismic, acoustic and backscatter imagery and gravity data. These positions require a minimum of 30 semester hours in mathematics (including calculus) and the physical sciences (geophysics, physics, engineering, geology, astronomy, meteorology, electronics, etc.)

Oceanographer—Oceanographers take measurements and samples at sea, obtain "remote sensing" data from satellites, perform laboratory studies on samples, analyze data and perform simulations of ocean phenomena with numerical models on computers.

Oceanographers are specialists, but oceanography involves the study of very dynamic and interactive processes. Almost any lifeform, phenomenon or reaction that occurs in the ocean is closely related to other features of the ocean. To understand one's own special area of interest, the oceanographer must have knowledge of other areas of oceanography.

An oceanographer position requires a minimum of 24 semester hours in oceanography or a related discipline such as physics, meteorology, geophysics, mathematics, chemistry, engineering, geology or biology. There are numerous types of oceanographers at NAVOCEANO.

Physical oceanographers are concerned with water masses and currents of the ocean, how the

water masses are formed and the forces that energize the water's motion as currents or waves. They study the interaction of various forms of energy (such as light, radar, heat, sound and wind) with the sea. They are interested in the interaction between the ocean and atmosphere, and the relationship among the sea, weather and climate.

Geological oceanographers describe the shape and nature of the seafloor. They investigate the origin of seafloor sediments and rocks. They may study coastal processes, dynamics of the continental shelf or slope, the creation of new seafloor at mid-ocean ridges and the movement of vast plates of seafloor and continents over millions of years.

Chemical oceanographers are interested in the distribution of chemical compounds, the interactions with the sun's energy, atmospheric compounds, dissolved and suspended organic and inorganic matter, sea life and the seafloor. Chemists may work entirely at the interface of the sea and atmosphere, in the zone affected by rivers, at the maximum depth of light penetration or in the unique environments created by deep sea thermal vents.

Biological oceanographers attempt to understand the many diverse forms of life in the sea, the patterns of their distribution and their complex interrelationships with other sea life. They may study how organisms affect the optical properties of the water or how they produce their own light (bioluminescence).

Bathymetrist/Hydrographer—These scientists map the ocean floors as well as littoral waters for navigation and other purposes. In cooperation with the University of Southern Mississippi, the Naval Oceanographic Office offers the nation's only master's degree program in hydrographic science. This is an intensive, 12-month master's degree program to train the next generation of hydrographers for the Navy.

Mathematician—Mathematicians may collect, process and database oceanographic data. The position requires 24 semester hours of mathematics including differential and integral calculus. In addition, four advanced mathematics courses requiring calculus or equivalent mathematics courses as a prerequisite are required.

Electronic Engineer/Computer Engineer—All professional engineering positions require a degree that includes differential and integral calculus and advanced courses in five of the following seven areas of engineering science or physics: (a) statics or dynamics, (b) strength of materials, (c) fluid mechanics or hydraulics, (d) thermodynamics, (e) electrical fields and circuits, (f) nature and properties of materials and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics or electronics.

Electronic Technician—Electronic Technicians routinely test, troubleshoot, modify, design, calibrate, install, maintain and repair a variety of electronic equipment. Qualifying experience could include work as a civilian or military technician, inspector or mechanic. Experience doing bench repair of television or radio receivers would be relevant if the applicant did troubleshooting on a variety of equipment and used test equipment such as sweep generators, marker generators or oscilloscopes.

Computer Scientist—Computer scientists may be responsible for software design and development or network administration. They could also specialize in graphics or database management. The position requires a minimum of 30 semester hours of mathematics, statistics and computer science and must include differential and integral calculus.

To check for current permanent and temporary (up to 4 years) vacancies, visit the Office of Personnel Management (OPM) jobs Web site at <http://www.usajobs.opm.gov>. For more information, please contact NAVOCEANO Public Affairs at 228.688.5649 or visit <https://www.navy.mil>.